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ABSTRACT

A questionnaire administered in 1986 to 87 graduate students, of whom 97% were currently teaching, elicited data on six aspects of teachers' attitudes toward computers: (1) computer anxiety; (2) instructional use of computers; (3) computer usage and accessibility; (4) use of computers by students; (5) educators' level of computer training and competence; and (6) educators' needs for training. Analysis of the responses indicated that the subjects no longer view computers as a threat to their jobs; half of the respondents believed computers should be used in all subject areas and that teaching computer literacy is the responsibility of teachers on all grade levels, but more than half of them indicated a preference for traditional teaching methods; many of the respondents felt that students enjoy using computers and should have more access to them, but only a third of them believed that students learn faster on computers; many respondents reported having received some inservice or formal training on computers, but felt that they maintained a low level of computer competence and that all teachers should be trained for computer usage. It was concluded that teachers need to understand that computers have the potential to assist in the teaching/learning process and be provided with both opportunities to acquire appropriate computer skills, and reasonable access to adequate computer facilities. Six references are listed and survey data are displayed in six tables. (MES)

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Attitudes of Teachers Toward the Use of Computers in the Schools

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The Attitudes of Teachers Toward the Use of Computers in Schools

Our society is experiencing a technological revolution as microcomputers become an important part of everyday life. This revolution is changing the way we communicate, the way we process information, and even the way we entertain ourselves.

The number of computers in the schools is steadily increasing. According to Tessmer (1984), the first nationwide survey of school districts concerning uses of computer technology was undertaken by Educational Research Service in 1980-81. At that time, two-thirds of the school districts reported the existence of some sort of computer literacy programs. By 1983 another survey of all 15,275 school districts in the United States revealed that 86% of the school districts used computers, and the use of computers for instruction more than doubled the number reported the previous year. By 1990, the number of computers in public schools is projected to be three million. (Education Turnkey Systems, Inc., 1985)

Because of the influx of computers into the schools, it is important to assess how teachers feel about computers. This study was designed to determine teachers' attitudes toward computers.

Background

Like many other technological innovations in education, the computer will not be the magic potion which will create the ideal learning environment. It is, however, a new piece of instructional equipment that will have a profound impact on the lives of educators, their teaching styles, and personal values. Before the computer can be successfully implemented into the classroom, it is important to examine the attitudes of teachers. They will have the greatest influence on how the computer will be used in the classrooms and how it will be viewed by the students.

According to Berg (1983) teachers' attitudes are viewed as the most misunderstood resisting force in the adoption process of the computer. Wright and Stone (1983) outlined four stages through which teachers progress in relation to their attitudes about computers. The

first is ignorance which is dominated by expressions of wonder, fear, and bewilderment. A feeling of helplessness characterizes the second level. Initial contact has been made with the computer and the learner feels unqualified to venture out to experiment. Next comes a feeling of autonomy in which some skill is becoming evident and thus confidence begins to grow. The mechanics of the computer are understood, but how can it be used for assistance in the classroom? The experience my be viewed also as purely entertainment. The fourth stage is an enhancement of creativity in educational applications. The emphasis now moves from the machine to the problem. The computer clearly becomes the tool directed by the user to do work, to write, to calculate, to analyze, to teach and learn.

A survey conducted by Wright and Stone (1983) indicated that 66% of the teachers felt unprepared and nearly half felt frustrated and insecure. Further data suggested that any exposure to the computer through various types of inservice training helped to relieve teachers' expectations of being made "uncomfortable" by the computer and also increased their determination to learn more about the computer. However, according to Kelly (cited in Davis & Davis, 1983) teachers who waited the longest time to begin training for computer use had the most difficulty in taking the first step. The teachers were fearful of joining a group that already had some finely developed skills. But teachers must learn about computers before their students' levels of computer literacy become another inhibiting factor.

For some teachers, mathematics is a fearful area. Some face computers with the same tumbling diversion as they do math courses. A poor mathematics background or a total disinterest in math relays the message that working on a computer will be an impossible dream because some teachers associate the computer as purely a mathematical tool.

Anxiety also exists concerning the mechanical manipulation of the machine. A feeling that the user will destroy a costly piece of equipment may be evident. According to Selfe (cited in Davis & Davis, 1983) teachers are afraid of the computer because it is an unfamiliar mechanical tool containing unimaginable components that work in complex

interactions. Of the 54 teachers surveyed, 47% admitted avoiding the computer in the past while 44% felt apprehensive about using the computer at the present time.

Last of all, teachers have professional concerns which encompass a wide assortment of fears. Some believe that "computerphobia" has taken the classroom and will undermine their jobs by taking over a teaching function. Reluctance to use the computer may be based on a fear of losing classroom authority or feeling unqualified because of lack of computer skills. Stevens (1980) indicated that 90% of the teachers surveyed did not feel they were qualified and 84% felt that math teachers should be responsible for teaching students about computers. The teachers' responses reflected anxiety when asked to indicate perceived levels of expertise and to offer modes of learning in which to use the computers as instructional tools in classrooms. Over 80% of the teachers surveyed indicated they did not know how to use the computer. However, over 50% of the teachers indicated a desire to learn the computer skills necessary to respond to the technological needs of students. As pointed out by Staniford (1983), over 46% of the sample of teachers surveyed was undecided or did not believe computers would enhance the teaching/learning process.

Method

A structured questionnaire was used to investigate the attitudes of teachers toward the use of computers in schools. The questionnaire contained questions and four or five alternative answers. The first part of the questionnaire dealt with demographic information about the participating teachers. The next part of the questionnaire reflected upon the attitudes of the respondents toward computers.

Results

Subjects. The subjects consisted of 87 graduate students enrolled in graduate courses during the Spring 1986. Eighty respondents were females and seven were males. Over three-fourths of the group were 31 years of age or older. All but 7% of the respondents were currently teaching. Of those teaching, 16% taught on the primary level, 37% middle

grades, 26% junior high, and 5% senior high. The remaining 9% were special teachers. Approximately one-third of the teachers taught 20 to 35 students daily as opposed to another one-third who taught over 75 students each day.

Analysis of the data concerning computer anxiety indicated that the subjects no longer view computers as a threat to their jobs or feel they are delicate machines that could be damaged if handled incorrectly. Eighty-five percent of the respondents agreed computers are uncomplicated teaching tools and 90% indicated they are valuable additions to school resources which will enhance the teaching/learning process. Over three-fourths of the educators responded that computers provide advantages for instruction and will have an impact on all persons in our society. However, nearly one-third of the teachers still feel frustrated when using computers (see Table 1).

The subjects responded in both an uncertain and negative manner to statements referring to instructional uses of computers. Half of the respondents believe computers should be used in all subject areas and that teaching computer literacy is the responsibility of teachers on all grade levels. Over half of the teachers indicated a preference for traditional teaching methods over the new computer technology. The majority of the respondents agreed that scheduling time to use computers is a problem and use them only once per week or less. Fifty-one percent of the subjects feel unqualified to teach computer literacy and one-third did not know how to integrate computer usage with their teaching methodology (see Table 2). Only 13% of the responding group had a computer in their classroom while approximately half had access to computers somewhere else in their schools (see Table 3).

Analysis of the data concerning students' computer usage indicated that 94% of the educators surveyed agree that students enjoy using computers and 82% believe students should have more access to them. Sixty-eight percent of the respondents believe that computer usage will not diminish individual or personal treatment of the students. However, only one-third believe students learn faster on computers (see Table4).

The data concerning computer training indicated that even though

69% of the respondents had received some inservice or formal training, they maintain a low level of computer competence (see Table 5). Moreover, 9% of the educators indicated a strong desire for more training and 77% feel all teachers should be trained for computer usage (see Table 6).

Conclusion

Successful implementation of computers to maximize educational objectives depends on many factors. Two major factors for successful implementation are teachers' attitudes toward computers and their levels of expertise with computers.

During the last five years there has been a tremendous growth in computer usage. The increase in computer usage has been noted by educators, and they now believe that a knowledge of computer technology is important. The fear of the unknown threatening creature, the alien computer, has come to pass. Because of minimal amounts of computer training, teacher attitudes have become more positive toward computers. However, more extensive training is warranted. Teachers express a strong desire to acquire the computer knowledge necessary to respond to the technological needs of the students and to relieve feelings of frustration and inadequacy to teach computer literacy. Training programs should be modified and expanded to meet the changing needs of both the teachers and students.

To maximize the success of computers in education at all levels of the educational spectrum, teachers need to understand that computers have the potential to assist in the teaching/learning process and be provided with opportunities to acquire appropriate computer skills. Teachers also need reasonable access to adequate computer facilities in order to achieve maximum results. The value of computers lies in the fact that they provide another instructional tool for teachers to use. They free teachers from certain mundane chores so that instructional time is better utilized and have the potential to assist in the teaching/learning process.

These are the best of times. These are the worst of times. These

are times when educational theories and practices can be re-examined. It is time for rethinking of traditional learning programs and for considering the influences new technology can make toward quality education for young children. There is no question that computers are with us and are having a profound effect upon our lives. Providing opportunities for children to learn to know and use computers requires teachers who can understand and use them with knowledge, confidence, and skill. It also places responsibilities upon teachers to establish criteria for usage, to be critical of the use of computers for activities better left for older children, and to speak out against "gimmick" learning. Using computers with children requires teachers to continue to see the total child in the best of all learning environments. Something that good teachers have always done.

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Table 1

Analysis of Data Concerning Computer Anxiety

Statements	Percentage of Responses		
	Agree	Disagree	No Response
1. Computers are viewed as a job threat.	2%	93%	5%
2. Computers can be damaged easily.	15%	80%	5%
3. Computers cause feelings of stupidity.	15%	78%	7%
4. Computers are complicated.	8%	85%	7%
5. Computers are valuable additions.	90%	7%	3%
6. Computers are viewed as valuable teaching tools.	90%	5%	5%
7. Computers are too much trouble.	11%	84%	5%
8. Computers will enhance the teaching/learning process.	86%	8%	6%
9. Computers provide more disadvantages.	14%	78%	8%
10. Computers will have an impact on society.	85%	8%	7%
11. Computers cause frustrations.	31%	64%	5%

Table 2

Data of Attitudes toward Instructional Uses of Computers

Statements	Percentage of Responses		
	Agree	Disagree	No Response
1. Computers should be used in all subject areas.	56%	28%	16%
2. Teaching computer literacy is the responsibility of all teachers	47%	45%	8%
3. Computer technology preferred over more traditional methods.	29%	53%	18%
4. Scheduling time for computer usage is a problem.	61%	38%	1%
5. Not qualified to teach computer literacy.	51%	39%	10%
6. Uncertain as how to integrate computer technology with traditional methods.	33%	59%	8%

Table 3

Data on Computer Usage and Accessibility

1. Amount of Usage	
Never	21%
Very seldom (2-3-times total)	26%
Once a week	26%
Two or more times a week	18%
Daily	9%
2. Accessibility to Computers	
No Access	5%
Access to school computer	55%
Computer in classroom	13%
Access to computer out side of school	8%
Own a computer	19%

Table 4

Data Concerning Students' Computer Usage

Statements	Percentage of Responses		
	Agree	Disagree	No Response
1. Students enjoy using computers.	94%	3%	3%
2. Students should have more computer access.	82%	7%	11%
3. Computer usage will result in less personal treatment of students	25%	68%	7%
4. Students learn faster on computers.	38%	49%	13%

Table 5

Data of Educator's Level of Computer Training and Competence

1. Training	
No training	9%
Self taught	8%
Inservice training	40%
Formal classroom training	29%
Combination of the above	14%
2. Competence	
Beginner	33%
Some experience	48%
Quite a lot of experience	8%
Very able, considerable experience	5%
No response	6%

Table 6

Data of Educators' Needs for Training

Statements	Percentage of Respones		
	Agree	Disagree	No Response
1. Teachers desire to learn more about computers.	91%	6%	3%
2. Teachers refuse to learn about Computers.	1%	93%	6%
3. All teachers should learn to use computers.	77%	16%	7%